



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

| APPLICATION NO.   | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 10/607,276  | 06/27/2003  | Seokhyun Lim         | 1751-340            | 4717             |
| 6449  | 7590        | 08/17/2004           | EXAMINER            |                  |
| ROTHWELL, FIGG, ERNST & MANBECK, P.C.<br>1425 K STREET, N.W.<br>SUITE 800<br>WASHINGTON, DC 20005 |             |                      | BRINSON, PATRICK F  |                  |
|   |             |                      | ART UNIT            | PAPER NUMBER     |
|   |             |                      | 3752                |                  |

DATE MAILED: 08/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                                |                            |  |
|------------------------------|--------------------------------|----------------------------|--|
| <b>Office Action Summary</b> | Application No.<br>10/607,276  | Applicant(s)<br>LIM ET AL. |  |
|                              | Examiner<br>Patrick F. Brinson | Art Unit<br>3752           |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 14 July 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-3 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-3 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. 6,296,020 to **McNeely et al.**

The patent to **McNeely et al.** discloses a fluid circuit component including a micro channel unit, figs. 3A to 3D, wherein the micro channel unit includes a micro channel with a width of micrometer dimensions through which fluid flows comprising a plurality of straight channel portions extending in a straight line pattern, and connecting channel portions that connect each pair of adjacent straight channel portions. The connecting channel portions being wider than the straight channel portions connected by the connecting channel portions, as recited in claim 1. Each connecting channel portion becomes progressively wider from one of the two adjacent straight channel portions connected by the connecting channel portion, toward the other

Art Unit: 3752

straight portion and is widest in a middle portion, as recited in claim 2.

A portion of the connecting channel portion includes a curved shape, as recited in claim 3.

*Response to Amendment*

3. Applicant argues that the present invention relates to a micro-scale channel unit and that the references to Whitsett et al., Kunstorff and Brooks do not disclose a micro channel with a width of micrometer dimensions through which fluid flows. It should be pointed out that, as discussed in the previous office action, that there is nothing structural recited in the claims that would distinguish the present invention from any other channel having straight portions with connecting portions connecting adjacent portions. Applicant argues that none of the prior art teaches the channel having a width of micrometer dimensions, however, a micrometer is merely a unit of measure like inch or foot, and therefore to say the channel is of micrometer dimensions is to say its of inch dimensions, wherein one unit may be converted into the other. The patent to **McNeely '020**, however, more closely resembles the present invention in specifically disclosing micro channels with straight and connection portions.

*Conclusion*

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The patents to Shia et al., Robotti et al. and McNeely et al '613 are pertinent to Applicant's invention in disclosing micro channel units including widening channel portions that connect adjacent straight portions.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Patrick F. Brinson** whose telephone number is (703) 308-0111. The examiner can normally be reached on M-F 7:30-3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Michael Y. Mar** can be reached on (703) 308-2087. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 3752

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Patrick F. Brinson  
Primary Examiner  
Art Unit 3752

P. F. Brinson  
August 19, 2004